Nexus between distributed leadership, teacher academic optimism and teacher organisational commitment: a structural equation modelling analysis

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Abstract

Purpose – This study aims to investigate the relationships between distributed leadership, teacher academic optimism and teacher organisational commitment with the contextual influence of gender and teaching experience.

Design/methodology/approach – This study employed partial least squares structural equation modelling for data analysis. This study has selected 421 teachers from 18 secondary schools in Penang.

Findings – Distributed leadership has a positive direct effect on teacher academic optimism and organisational commitment. The relationship between distributed leadership and teacher academic optimism was stronger for male teachers and senior teachers who have more than ten years of teaching experience. However, gender and teaching experience have no significant moderating effects on the relationship between distributed leadership and teacher organisational commitment.


Practical implications – This study complements and extends prior research on the relationships between distributed leadership, teacher organisational commitment and teacher academic optimism by providing evidence from Malaysia on how they contribute to the organisational conditions of their school.

Originality/value – This study has its originality in investigating the relationships between distributed leadership, teacher organisational commitment and academic optimism with the contextual influence of gender and teaching experience in the non-western society.

Keywords Distributed leadership, Organisational commitment, Partial least squares structural equation modelling, Teacher academic optimism

Paper type Research paper

1. Introduction

Distributed leadership has become one of the most prominent leadership models in the 21st century because of the fact that leadership is too complex to be handled purely through solo leadership, particularly in a large school (Adams, 2018; Bush, 2019; Bush and Ng, 2019; Muthiah et al., 2020; Thien, 2019). It is believed that empowering more leaders could increase leadership capacity, leading to optimising learning outcomes (Bush and Glover, 2014). Distributed leadership “is not simply a process of headship delegation, rather should be redistribution of power” (Harris, 2003, p. 19). To elaborate on distributed leadership, Harris...
(2003) highlighted distributed leadership emphasises engaging expertise within the organisation instead of power delegation through a formal position.

In a school setting, distributed leadership refers to a form of shared leadership amongst organisational members (Harris, 2008) and a process shaped by the daily interactions between the school leader and the school organisation (Spillane, 2004; Spillane et al., 2004). Literature reveals distributed leadership is significantly associated with teachers’ academic capacity (Hallinger and Heck, 2010) and organisational commitment (Hulpia et al., 2009, 2012). Apart from that, distributed leadership is positively associated with teacher academic optimism (Chang, 2011; Mascall et al., 2008). Teacher academic optimism refers to teachers feeling positive about their self-efficacy and their belief that they are capable of achieving their goals (Chang, 2011).

Nevertheless, there are noticeable research gaps in the literature. First, not many studies have incorporated the effects of distributed leadership on teacher academic optimism and teacher organisational commitment simultaneously into one coherent empirical study design. Thus, it remains unclear whether the distributed leadership has differential effects on teacher organisational commitment and academic optimism. Second, while distributed leadership originated in the western contexts, it remains debatable whether distributed leadership can also significantly enhance teacher organisational commitment and academic optimism in Asian context such as Malaysia (Bush and Ng, 2019). The practice of distributed leadership, which involves school members at all levels, could lead to the detraction of school goals in a rigid top-down bureaucratic education system (Thien, 2019), and school leaders are likely just delegating tasks to their senior assistants and teachers in the form of allocative distributive (Bush and Ng, 2019).

Third, inconsistent findings were found in the contextual influence of gender and teaching experience on teacher organisational commitment (Hulpia et al., 2009, 2012; Thien, 2019). For instance, Hulpia et al. (2009) and Hulpia et al. (2012) found that male teachers have higher organisational commitment than female teachers. However, Thien and Adams (2021) found that the relationship between leadership supervision dimension of distributed leadership and teachers’ commitment to change was stronger for early-career teachers compared to middle-career teachers in the Malaysian primary school context. Apart from that, studies related to teacher academic optimism across gender and teaching experience are limited in the literature. However, there exist gender differences on teachers’ self-efficacy, which is one of the dimensions of teacher academic optimism. For example, male teachers have higher self-efficacy compared to female teachers (Odanga et al., 2015), and vice-versa (Ongowo and Hungi, 2014). Thus, it can be inferred that the relationships between distributed leadership, teacher organisational commitment and teacher academic optimism could be influenced by the contextual factors of gender and teaching experience.

To address these research gaps, this study has the following four research objectives:

1. To examine the direct relationship between distributed leadership and teacher academic optimism.
2. To examine the direct relationship between distributed leadership and teacher organisational commitment.
3. To examine the moderating effects of gender and teaching experience on the relationship between distributed leadership and teacher academic optimism.
4. To examine the moderating effects of gender and teaching experience on the relationship between distributed leadership and teacher organisational commitment.
2. Theoretical perspective
The theoretical foundation discusses both the conceptual and operationalised meanings of the undertaken variables, which helps to rationalise the measurement in this study. Next, this section focuses on the associations between distributed leadership, teacher academic optimism and teacher organisational commitment.

2.1 Distributed leadership
The concept of distributed leadership was first coined in the social psychology literature and rapidly gained attention in the educational setting in the early 1990s (Gronn, 2002). Gronn (2000) described distributed leadership as emergent instead of a fixed phenomenon. In other words, distributed leadership is viewed as “a collective phenomenon where leadership is present in the flow of activities in which a set of organisation members find themselves involved” (Gronn, 2002, p. 445).

Drawing on the distributed cognition and activity theory, Spillane (2005, 2006) iterated that distributed leadership focuses on leadership practices through the interactions between people rather than leaders’ roles, functions, routines and structures. These conceptualisations informed that distributed leadership is beyond heroic leadership as schools are not run exclusively by one single leader (Harris et al., 2007), but the practice of leadership is stretched within and across school with the involvement of school members at all levels (Spillane et al., 2004).

As adopted by the current study, Hulpia et al. (2009) have proposed a comprehensive concept of distributed leadership with its four dimensions. These four dimensions are (1) cooperation of the leadership team, (2) leadership support, (3) leadership supervision and (4) participative decision-making. Cooperation of the leadership team is conceptualised as a cohesive group with open expression of feelings and disagreements, mutual trust among team members and open communication (Holtz, 2004). Leadership support is conceptualised as the ability of the school leaders to guide and encourage the teachers towards the fulfilment of overall goals and objectives (Spillane, 2006). Leadership supervision refers to the ability of school leaders to monitor and supervise the teachers doing their work. Meanwhile, participative decision-making is conceptualised as the extent to which school leaders involve teachers to share or participate in school decision-making.

2.2 Teacher academic optimism
Academic optimism is an emerging construct from positive psychology research (Beard et al., 2010). Academic optimism was first coined by Hoy et al. (2006). Teacher academic optimism refers to “teachers’ positive belief that they can make a difference in student academic performance by emphasising academic and learning, trusting parents and students cooperate in the learning process, and believing in their capacities to deal with difficulties and resolve failure with resilience and perseverance” (Woolfolk Hoy et al., 2008, p. 822).

Teacher academic optimism is a latent construct with its three dimensions: teacher sense of efficacy, teacher trust in students and parents and academic emphasis (Woolfolk Hoy et al., 2008). Teacher sense of efficacy refers to teachers’ belief in their abilities to bring about desired outcomes of student engagement and learning. Teacher trust in students and parents refers to the teachers’ abilities to form positive bonds with parents and students. Meanwhile, academic emphasis refers to teachers’ belief in the importance of academic success, and they plan and execute learning activities to achieve the goal.

2.3 Teacher organisational commitment
Organisational commitment refers to the relative strength of an individual’s identification with and involvement in an organisation (Mowday et al., 1979). Organisational commitment
consists of three characteristics: (1) identification, or a belief in and acceptance of organisational goals and values; (2) involvement; and (3) willingness to exert effort on behalf of the organisation (Mowday et al., 1979). The committed members have an impact on what is going on in it, feel that they have high status within it and they are willing to contribute beyond the expectations of the members of the organisation (Bogler and Somech, 2004). In the education setting, teacher organisational commitment is conceptualised as teachers’ sense of loyalty to school as a workplace and identification with its values and goals (Mowday et al., 1979).

2.4 Relationship between distributed leadership and teacher academic optimism
Alenezi (2019) pointed out that there is a significant positive correlation between distributed leadership practices and academic optimism among faculty members in the Northern Border University. The results also concurred with Malloy’s (2012) study that indicated a positive correlation between the distributed leadership style and academic optimism of teachers in secondary schools in Canada. Similarly, a significant positive correlation between teachers’ distributed leadership perception and overall perception of academic optimism is evident among 321 Turkish teachers (Köisterelioglu, 2017).

The earlier study by Mascall et al. (2008) found that distributed leadership is consistently increasing association with academic optimism. Chang’s (2011) quantitative study found that distributed leadership has positively influenced teacher academic optimism and indirectly influenced student achievement in public elementary schools in Taiwan. The findings confirmed previous research that distributed leadership has a positive and consistent relationship with academic optimism (Mascall et al., 2008). As such, H1 is postulated as follows:

H1. There is a positive relationship between distributed leadership and teacher academic optimism.

2.5 Relationship between distributed leadership and teacher organisational commitment
Literature convinced the significant effect of distributed leadership on teacher organisational commitment and school improvement (Harris et al., 2007; Harris, 2008). Specifically, Hulpia et al. (2012) had examined the effect of each dimension of distributed leadership on teacher organisational commitment by using multilevel approach involving 1,522 teachers in 46 Flemish secondary schools. Hulpia et al. (2012) concluded that the dimension of cooperative leadership team has a positive impact on teacher organisational commitment. The findings could be justified when all leaders are able to coordinate effectively and recognise one another’s leadership.

Hulpia et al. (2012) have also found that leadership support of the principal has an important positive influence on their organisational commitment. The finding concurred with Nguni et al. (2006) that principal leadership support is essential to enhance teacher organisational commitment. This finding is similar to previous research (Park, 2005), which suggests that providing sufficient support and monitoring teachers’ daily practices are important for teacher organisational commitment. However, the dimension of leadership support has no significant effect on teacher organisational commitment (Hulpia et al., 2011). Meanwhile, leadership support has a marginally significant negative effect on organisational commitment (Hulpia et al., 2012). Besides, the dimension of participative school decision-making is associated with teacher organisational commitment positively (Hulpia et al., 2012). Considering the above-mentioned literature, the study postulated H2.

H2. There is a significant relationship between distributed leadership and teacher organisational commitment.
2.6 Gender and teaching experience as the moderators
The contextual influence in terms of gender and teaching experience on the relationship between distributed leadership and teacher academic optimism is considered scarce in the literature. A few exceptions such as a Taiwanese study by Chang (2011) found that male teachers and senior teachers have high perceptions of distributed leadership and teacher academic optimism. Odanga et al. (2015) revealed that male teachers have higher self-efficacy compared to female teachers. The finding is consistent with Klassen and Chiu (2010). By contrast, Arslan (2013) emphasised that female teachers have higher self-efficacy than male teachers. On the contrary, the finding of Alenezi (2019) has shown that there is no significant influence of gender on teacher self-efficacy. Besides, the level of teacher self-efficacy is likely to increase, parallel with the increase of teaching experience (Huang and Yin, 2018). These authors found that teacher efficacy increased with experience for early- and mid-career stage teachers and declined for teachers in the late career stages. As teacher self-efficacy is one of the dimensions of teacher academic optimism, it can be inferred that there exist gender differences and teaching experience on the relationship between distributed leadership and teacher academic optimism. Thus, H3 and H4 were posited as follows:

H3. There is a moderating effect of gender on the relationship between distributed leadership and teacher academic optimism.

H4. There is a moderating effect of teaching experience on the relationship between distributed leadership and teacher academic optimism.

Previous research has shown that males and females are different in their organisational commitment. Some early studies found that females are more committed than males (Mathieu and Zajac, 1990; Reyes, 1992). It has concurred with the findings of Thien and Adams (2021) that the relationship between a dimension of distributed leadership, namely, leadership supervision, and teacher commitment to change was stronger for female teachers than male teachers. Meanwhile, Hulpia et al. (2009) and Hulpia et al. (2012) concluded that male teachers have higher organisational commitment than female teachers. On the other hand, literature informed the dimensions of distributed leadership, which are leadership supervision and participative decision-making, and teacher commitment to change were stronger for early-career teachers compared to mid-career teachers (Thien and Adams, 2021). Thien and Adams’s (2021) findings were supported by earlier studies by Reyes (1992) and Hulpia et al. (2012), as teaching experience negatively affected organisational commitment. However, other studies revealed a nonsignificant relationship between organisational commitment and teaching experience (Dee et al., 2006). Such inconsistent findings have prompted the current study to advance the following hypotheses:

H5. There is a moderating effect of gender on the relationship between distributed leadership and teacher organisational commitment.

H6. There is a moderating effect of teaching experience on the relationship between distributed leadership and teacher organisational commitment.

3. Methods
3.1 Sample
This study employed a cross-sectional quantitative survey method research design. We used a two-stage cluster sampling procedure for data selection. The targeted population in this study is the public secondary school teachers in Penang because of convenience. There are five districts in Penang: (1) south-west, (2) North Seberang Perai, (3) South Seberang Perai, (4) Central Seberang Perai and (5) north-east. Four schools from each district were selected, with
two schools each from urban and rural areas, except the north-east district. The northern district does not have any school in the rural area. This made up 18 selected schools. Next, 25 teachers were selected from each school. Thus, the desired sample size is 450. A minimal sample size of 110 with the power of 0.95 and effect size of 0.10 is computed using G*Power 3.1.9.2 (Faul et al., 2009). Hence, the desired sample size of 450 is considered sufficient in this study. However, only 421 respondents have responded to the questionnaire. The response rate was 93.6%.

The sample demographic background showed that female teachers were the dominant group, about 79.1% (333), and the remaining 20.9% were male teachers. About 28.3% of the sample has teaching experience between six and ten years, 23% with teaching experience 20 years and above, 19.5% with teaching experience five years and below, 16.4% with teaching experience 11–15 years, followed by 12.8% with teaching experience between 16 and 20 years.

3.2 Instrumentation
This study employed Hulpia et al.’s (2009) distributed leadership scale to measure the four dimensions of distributed leadership. Hulpia et al.’s (2009) distributed leadership scale consisted of 29 items: cooperation of the leadership team (ten items), leadership support (ten items), leadership supervision (three items) and participative decision-making (six items). The measure is a five-point Likert scale. Each dimension of distributed leadership has reported satisfactorily reliability with the Cronbach’s alpha of cooperation of the leadership team (0.93), leadership support (0.91), leadership supervision (0.79) and participative decision-making (0.81) (Hulpia et al., 2009).

The teacher academic optimism was measured using Chang’s (2011) teacher academic optimism scale, with a total of 19 items measuring three dimensions: academic emphasis (eight items), teacher trust in students and parents (eight items) and teacher efficacy (three items). Participants rated their responses on a six-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Each dimension of the adapted teacher academic optimism scale has reported satisfactorily reliability. The Cronbach’s alpha of academic emphasis was 0.872, teacher trust in students and parents was 0.917 and teacher sense of efficacy was 0.760 (Chang, 2011). Teacher organisational affective commitment was measured by a six-item scale (Mowday et al., 1979). The Likert response categories ranged from 0 (strongly disagree) to 4 (strongly agree). The reliability of the original teacher organisational commitment scale was reported satisfactory with Cronbach’s alpha of 0.91 (Mowday et al., 1979).

This study used forward translation for survey item translation (Brislin, 1970). All items in the English version are translated into Malay language. The Malay version is reviewed by two university lecturers who specialised in educational leadership studies and two language secondary teachers. Items are revised according to the comments and suggestions from the experts. Discrepancies among the experts were resolved, and 54 translated items were finalised.

3.3 Data collection procedure
After getting the written consent from the ministry authority and state education department, the researchers secured permission from the principals in the 18 selected schools. Each set of questionnaire was attached with a cover letter explaining the purpose of the study. Respondents were asked to evaluate their principal’s role in practising distributed leadership in their schools, their academic optimism and organisational commitment. The participation was strictly confidential to alleviate teacher anonymity concerns. Teachers could contact the researcher if they had questions when answering the survey items.
3.4 Data analysis procedure
This study employed partial least squares structural equation modelling (PLS-SEM) using SmartPLS 3.2.9 computer software for data analysis (Ringle et al., 2015). The reason for using the PLS-SEM approach to run the analysis in this study is because of its superiority to analyse the first- and second-order measurement model (Hair et al., 2017; Sarstedt et al., 2019). This study consists of two second-order constructs, namely, distributed leadership and teacher academic optimism. Distributed leadership comprises of four first-order constructs: (1) cooperation of leadership team, (2) leadership support, (3) leadership supervision and (4) participative decision-making. Teacher academic optimism consists of three first-order constructs: (1) academic emphasis, (2) teacher trust in students and parents and (3) teacher efficacy. Meanwhile, teacher organisational commitment is a unidimensional construct.

This study applied the two-stage approach that involves assessment of reflective measurement model, followed by assessment of structural model (Hair et al., 2019). For the assessment of the measurement model, the analysis began with the assessment of first-order constructs. Assessment of reflective measurement model aims to examine the establishment of convergent and discriminant validity. Convergent validity refers to the extent to which the construct converges to explain the variance of its items (Hair et al., 2019). According to Hair et al. (2019), the parameter estimates of convergent validity are: (1) average variance extracted (AVE) for all items on each construct. The cut-off value of AVE is 0.50, which implies the construct explains 50% or more of the variance of the items that make up the construct; (2) internal consistency in terms of the estimation of Cronbach’s alpha and composite reliability (CR). The cut-off value of CR is 0.70; and (3) indicator reliability (loading values) with the cut-off value of 0.70.

Discriminant validity refers to the extent to which a construct is empirically distinct from other constructs in the structural model (Hair et al., 2019). This current study employed the heterotrait-monotrait ratio (HTMT) of the correlations as proposed by Henseler et al. (2015). The HTMT refers to the mean value of the item correlations across constructs relative to the mean of the average correlations for the items measuring the same construct. An HTMT value above 0.90 would suggest the absence of discriminant validity (Henseler et al., 2015). Similar procedures were applied to the assessment of measurement model of the second-order constructs. The analysis continued with the assessment of structural model. Next, we used two-stage approach proposed by Fassott et al. (2016) for the moderating effects of gender and teaching experience.

4. Results
4.1 Assessment of reflective measurement model (first-order constructs)
The first round of analysis indicated that eight items (LS1, LS2, PA1, PA2, AE7, AE8, TT7 and TT8) had to be excluded from the analysis because the loading values were below the threshold of 0.70 (Hair et al., 2019). After excluding these eight items, the second run of analysis showed that all the loading values were above 0.70 (Table 1). The AVE and CR values of each first-order construct were above the threshold of 0.50 and 0.70, respectively. The findings showed that convergent validity of the first-order constructs was established. Table 2 shows that all the HTMT values are below 0.90 (HTMT0.90). The findings confirmed the establishment of discriminant validity.

4.2 Assessment of reflective measurement model (second-order constructs)
For the assessment of measurement model of second-order constructs, Table 3 shows that all the loadings of first-order constructs are above the threshold of 0.70. The CR and AVE values of distributed leadership and teacher academic optimism are larger than 0.70 and 0.50,
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Table 1. Assessment of measurement model of first-order constructs
respectively. The findings indicated that the convergent validity was established. On the other hand, Table 4 shows that the HTMT values are smaller than 0.85, indicating that the discriminant validity was established.

4.3 Assessment of structural model

Table 5 shows that distributed leadership has a significant and positive effect on teacher academic optimism ($\beta = 0.356, p < 0.001$) and teacher organisational commitment ($\beta = 0.519, p < 0.001$) at the significance level of 0.05. The $t$-values were larger than 1.645 and 95% confidence interval bias corrected contained no zero values, which have further signified the significant effects of distributed leadership on teacher academic optimism and organisational commitment. Thus, H1 and H2 were supported. Figure 1 shows that distributed leadership contributed 12.7% variance explained on teacher academic optimism. Meanwhile, distributed leadership contributed 26.9% variance explained on teacher organisational commitment. The effect size of distributed leadership on teacher organisational commitment was 0.368, while teacher academic optimism indicated an effect size of 0.145.

Table 5 and Figure 2 show that gender ($\beta = -0.181, p = < 0.05$) and teaching experience ($\beta = 0.236, p = < 0.05$) have significant moderating effects on the relationship between
distributed leadership and teacher academic optimism at the significance level of 0.05. Hence, H3 and H4 were supported.

Figure 3 shows that the relationship between distributed leadership and teacher academic optimism is stronger for male teachers compared to female teachers. Meanwhile, Figure 4 shows that the relationship between distributed leadership and teacher academic optimism is stronger for teachers who have more teaching experience compared to their counterparts with less teaching experience.

However, Table 5 and Figure 5 show that gender ($\beta = -0.026, p = 0.121$) and teaching experience ($\beta = 0.059, p = 0.121$) did not have significant moderating effects on the relationship between distributed leadership and teacher organisational commitment at the significance level of 0.05. Hence, H5 and H6 were not supported.

5. Discussion
The present study investigates the relationships between distributed leadership with teacher academic optimism and teacher organisational commitment coupled with the contextual influence of gender and teaching experience in a Malaysian secondary school context. Several important findings were revealed as follows:

First, we examine the relationship between distributed leadership and teachers’ academic optimism. The results show significant direct effects of the distributed leadership dimensions on teacher academic optimism. The findings indicate a cooperative and well-functioning leadership team is likely to influence teacher efficacy towards achieving team-based objectives and problem solving (Thien and Chan, 2020). Moreover, teachers who participate

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Beta</th>
<th>SE</th>
<th>t-value</th>
<th>p-value</th>
<th>LL</th>
<th>UL</th>
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<td>H1: DL → TAO</td>
<td>0.356</td>
<td>0.039</td>
<td>9.074</td>
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<td>0.268</td>
<td>0.421</td>
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<td>0.519</td>
<td>0.035</td>
<td>14.703</td>
<td>&lt;0.001</td>
<td>0.444</td>
<td>0.581</td>
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<td>H3: DL × Gender → TAO</td>
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<td>0.043</td>
<td>4.222</td>
<td>&lt;0.001</td>
<td>-0.263</td>
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<td>H4: DL × Experience → TAO</td>
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<td>5.777</td>
<td>&lt;0.001</td>
<td>0.147</td>
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<tr>
<td>H5: DL × Gender → TO</td>
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<td>0.560</td>
<td>-0.108</td>
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<tr>
<td>H6: DL × Experience → TO</td>
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<td>0.038</td>
<td>1.552</td>
<td>0.121</td>
<td>-0.008</td>
<td>0.145</td>
<td>Not supported</td>
</tr>
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</table>

Table 5. Hypothesis testing

![Diagram of structural model](figure1.png)
in the decision-making process, collectively accept responsibility and accountability and formed a shared vision among them are likely to influence their academic optimism in the school (Woolfolk Hoy et al., 2008) and teachers’ trust in students and parents (Somech, 2005). Particularly, teachers who receive support and supervision from their school principals are likely to believe in their students’ ability to achieve academic success. The positive relationship between distributed leadership and teachers’ academic optimism is similar with the findings of previous studies in the Malaysian primary school context (Thien and Chan, 2020) as well as in different contexts, such as Saudi Arabia (Alenezi, 2019), Turkey (Kösterelioglu, 2017) and Canada (Malloy, 2012).

![Figure 2. Moderating effect of gender and teaching experience (teacher academic optimism)](image2.png)

![Figure 3. Gender as moderator](image3.png)
Second, an investigation on the relationship between distributed leadership and teacher organisational commitment indicates a significant direct relationship, which is consistent with the international literature that teachers feel more committed when leadership is distributed in schools (e.g. Harris et al., 2007, Harris, 2008; Hulpia et al., 2011; Hulpia et al., 2012). Thus, schools that practice distributed leadership may reduce teacher turnover. Teachers are more loyal and committed to the school, as distributed leadership encourages greater participation from the teachers in decision-making and harnesses their cooperation in the leadership team (Hulpia et al., 2012). Moreover, principals who provide a supportive

![Figure 4. Teaching experience as a moderator](image)

![Figure 5. Moderating effect of gender and teaching experience (teacher organisational commitment)](image)
environment such as motivating and assisting teachers are able to foster and set a mutually agreed school vision and goals among their teachers’ goals, which are important to initiate committed teaching force (Hulpia et al., 2012; Nguni et al., 2006). Likewise, teachers prefer a principal who focuses on group cohesion, role clarity and goal orientedness (Hulpia et al., 2012). We affirm that a leadership team that is well structured, with clear goals and a clear task division, leads to increments in teachers’ organisational commitment (Devos et al., 2014). However, in a centralised education system such as Malaysia, the advocacy of distributed leadership has to be interpreted with caution. The approach to distribution might be consistent with the notion of allocative distributed leadership where decisions must go through a hierarchy, as principals remain in control and have firm reporting requirements. Perhaps consequently, teachers feel empowered and may enhance their commitment (Bush and Ng, 2019).

Third, we examine the moderating effect of gender on the relationship between distributed leadership and teacher academic optimism. The results indicate the influence of distributed leadership on teacher academic optimism was stronger for male teachers as compared to female teachers. One of the possible reasons to explain the finding is that male teachers have higher self-efficacy compared to female teachers. This is a new finding that can be used to supplement several past studies that have also reported male teachers have higher academic optimism than their female counterparts (see Akram and Ghazanfar, 2014; Chang, 2011; Klassen and Chiu, 2010; Odanga et al., 2015). By contrast, few studies reported female teachers, rather than male teachers, have higher academic optimism (Arslan, 2013; Ongowo and Hungi, 2014).

The results of this study also provide evidence on the relationship between distributed leadership and teacher academic optimism was stronger for the senior teachers who have more than ten years of teaching experience as compared to junior teachers who have lesser teaching experience. This is coherent with findings of Chang (2011) that senior teachers have high perceptions on distributed leadership and teachers’ academic optimism. Klassen and Chiu (2010) argued teachers’ self-efficacy increased with experience for junior career teachers. Therefore, this result is not surprising, as several scholars have asserted the level of teacher self-efficacy is likely to increase parallel with the increase of teaching experience (Huang and Yin, 2018; Liu, 2016; Thien and Adams, 2021).

Finally, the relationship between distributed leadership and teacher organisational commitment has no significant moderating effects across teachers’ gender and teaching experience. This is a new finding that can be used due to the inconsistent findings of previous studies, which found significant relationship between distributed leadership and teacher organisational commitment across gender (Hulpia et al., 2009, 2012; Mathieu and Zajac, 1990; Reyes, 1992; Thien and Adams, 2021) and teaching experience (Hulpia et al., 2012; Reyes, 1992; Thien and Adams, 2021). The findings indicate teachers’ organisational commitment is not fully explained by leadership factors. Consequently, teachers’ organisational commitment in this study is likely attributed to internal, external and personal factors in addition to leadership factors (Liu, 2015, 2016). We speculate the internal factors are teachers’ perception of teaching and external factors are the role of the principal and the school culture (Liu, 2016).

6. Conclusion and suggestions
Scholars have long been interested in investigating school leadership influence on student achievement (Bush and Ng, 2019; Heck and Hallinger, 2009; Karacabey et al., 2020). A conclusion has been reached that the impact of leadership on student learning is indirect through their effect on school organisational factors such as teacher organisational
commitment as well as their academic optimism (Chang, 2011; Hulpia et al., 2009, 2012; Mascall et al., 2008).

This study has both policy and practical implications. For policy implication, the findings of this study could be used to inform educational policymakers to relook into principal preparation and teacher professional development programmes in a way that incorporates theories and practices of distributed leadership to build teachers’ capacity to influence teaching and learning in their schools and to ensure more acceptance and openness for school principals to share and distribute their leadership roles. For practical implication, school leaders could provide more opportunities for teachers to participate in school decision-making. Engagement in decision-making increases teachers’ self-efficacy that, in turn, enhances their academic optimism. In addition, school leaders could form effective leadership team with clear goals and task specification as this increases teachers’ organisational commitment. Besides, school leaders could exert more effort to promote teacher academic optimism among female teachers and teachers with lesser teaching experience by giving more opportunities to these group of teachers to take up either formal or informal leadership positions in the school.

This study is limited to a quantitative methodology. Thus, future studies, which are qualitative in nature, could explore and extend the findings of this research in understanding the phenomenon of distributed leadership, teacher academic optimism and teacher organisational commitment in Malaysian high-performing school settings involving the contextual influence of gender and teaching experience. A qualitative study exploring to what extent, and in what ways, distributed leadership is practiced in Malaysian schools is also an interesting proposition due to Malaysia’s highly centralised education system. In addition, the sample size was relatively moderate and included teachers from only one state in Malaysia. As such, future studies could involve larger sample size to ensure the data are representable and generalisable.

In conclusion, this research complements and extends prior research on the relationships between distributed leadership, teacher organisational commitment and academic optimism by providing evidence from a developing society on how they contribute to the organisational conditions of their school. The results of this study support the international literature that the distributed leadership can make a difference in teacher organisational commitment and academic optimism. The current study also provides empirical support to the Malaysian Education Blueprint 2013–2025’s aspiration, which acknowledged distributed leadership as a choice for school leadership.

References


Reyes, P. (1992), Preliminary Models of Teacher Organizational Commitment: Implications for Restructuring the Workplace, (ERIC Document No. 349 680), Center on Organization and Restructuring of Schools, Madison, WI.


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